

The philosophy of embedded design

Carl Cohen, Director, Embedded Marketing Programs, Avnet Electronics Marketing, Americas

As technology has become more pervasive in our day-to-day lives, easy adoption is a critical factor in the overall success of a product release. To achieve this, embedded designers must first determine the practical problem the application will solve or the tangible life enhancement it will offer. More than just providing state-of-the-art features pushing the boundaries of speed and performance, the device must fit within the context of the user's lifestyle and experience. Once the use case is clear and the benefits defined, the developer can get to work on pulling the pieces together.



First, developers must evaluate their company's internal strengths and core competencies. These resource realities are then weighed against time-to-market pressures to determine which tasks are best done internally and where strategic partnerships should be leveraged to cover the balance. Differentiating elements are best done with internal resources who know their company's relative intellectual property and strategic vision. The balance of the tasks should be outsourced to a reliable partner who can provide design support and product development services to maximize both time and development resources.

The first technical consideration becomes the software application running on the

The philosophy of embedded design

Published on Electronic Component News (<http://www.ecnmag.com>)

appliance, in particular the operating system and supporting middleware. Stitching these layers together requires the developer to understand how to optimize the boot process, reduce latency, ensure security and get the richest graphical presentation. From there, the designer considers the best processing solution to run the application. The number of cores to use, power budgets and future road maps are just a few of the considerations. Architectural decisions also take into account available tools for development and emulation, the viability of the processor vendor and their ecosystem partners. For embedded developers addressing regulated markets such as medical further assurance of agency compliance and long life product availability are critical as well.

User interface and connectivity are also critical from both a market acceptance standpoint and functional perspective. A prime example is the growth in the use of touch screen technology for human-machine interface. The use of touch, and multi-touch, has become the new norm. However, it can be a challenge for developers and may not be a core competency for the design team.

Once the product is defined and the sub-systems within it detailed, the developer still must address final integration and assembly including packaging, documentation and post-sale support. Once again, the tradeoff between using limited and highly valuable internal resources or a properly vetted partner must be considered.

The philosophy of embedded design takes into account more than just hardware and software selection. User experience, efficient resource utilization and strategic partnering all must be considered to ensure an effective product launch and market adoption. Finding the right partner that offers engineering services and support for each stage of production development and post-sale requirements can positively impact both time to market and bottom line results.

Source URL (retrieved on 07/11/2014 - 4:38am):

<http://www.ecnmag.com/articles/2013/03/philosophy-embedded-design>